

CLAIMS

WHAT IS CLAIMED IS:

- 1 1. A method of making a photonic via comprising:
 - 2 making a hole in a substrate;
 - 3 depositing a cladding material into the hole;
 - 4 depositing an optical core material into the hole.
- 1 2. The method of claim 1 further comprising:
 - 2 forming a lens on top of the optical core material.
- 1 3. The method of claim 2 further comprising:
 - 2 depositing a polymer on top of the optical core material; and
 - 3 curing the polymer to form a lens.
- 1 4. The method of claim 1 further comprising:
 - 2 polishing the substrate.
- 1 5. The method of claim 1, wherein the hole is made only partially through the
 - 2 substrate.

4 depositing a first polymer into the trench, wherein the polymer has an index
5 of refraction higher than that of the oxide.

1 13. The method of claim 12 further comprising:
2 polishing the silicon substrate.

1 14. The method of claim 13 further comprising:
2 forming a lens over the first polymer.

1 15. The method of claim 14 further comprising:
2 depositing a second polymer over the first polymer; and
3 curing the second polymer to form the lens.